What is claimed is:

1. A revolution member supporting apparatus, comprising:

a rotatable member which rotates about an axis of rotation; and

a plurality of holding members which are disposed along a circle having a center corresponding to said axis of rotation of said rotatable member, and which revolve around said axis of rotation when said rotatable member rotates;

wherein said holding members are allowed to swing about their own central axes.

2. The revolution member supporting apparatus according to claim 1, wherein each of said holding members has a free end with an arc-like recess for engaging a peripheral portion of an object to be rotated.

3. The revolution member supporting apparatus according to claim 1, wherein said holding members are allowed to swing to a predetermined degree of angle about their own central axes.

4. The revolution member supporting apparatus according to claim 1, wherein each of said holding members has a center of gravity deviated from said central axis of said holding member.

5. The revolution member supporting apparatus according to claim 4, wherein a weight is attached to said holding member,

said weight having a center of gravity at a distance from said central axis of said holding member.

6. The revolution member supporting apparatus according to claim 1, wherein each of said holding members can move between an engaging/holding position where said holding member engages a peripheral portion of an object to be rotated, and a release position where said holding member is detached from said object to be rotated along a radial direction of said rotatable member.

7. The revolution member supporting apparatus according to claim 6, further comprising an elastic body that causes said holding member located in said engaging/holding position to engage elastically with the peripheral portion of said object to be rotated.

8. The revolution member supporting apparatus according to claim 7, wherein said elastic body comprises a spring.

9. A semiconductor substrate processing apparatus, comprising:

a carry-in and carry-out section for carrying in and carrying out a semiconductor substrate having a surface on which a circuit is formed, in a dry state;

a plated metal film forming unit for forming a plated metal film on said semiconductor substrate which has been carried in;

a polishing unit for polishing at least part of said plated metal film on said semiconductor substrate;

a cleaning unit for cleaning said semiconductor substrate held by a revolution member supporting apparatus; and

a transfer mechanism for transferring said semiconductor substrate between said units;

wherein said revolution member supporting apparatus comprises:

a rotatable member which rotates about an axis of rotation; and

a plurality of holding members which are disposed along a circle having a center corresponding to said axis of rotation of said rotatable member, and which revolve around said axis of rotation when said rotatable member rotates;

wherein said holding members are allowed to swing about their own central axes.

10. The semiconductor substrate processing apparatus according to claim 9, further comprising a reinforcing seed layer forming unit for forming a reinforcing seed layer on said semiconductor substrate.

11. The semiconductor substrate processing apparatus according to claim 9, further comprising a seed layer forming unit for forming a seed layer on said semiconductor substrate.

12. The semiconductor substrate processing apparatus according to claim 9, further comprising a barrier layer forming unit for forming a barrier layer on said semiconductor substrate.

13. The semiconductor substrate processing apparatus according to claim 9, further comprising a cap plating unit for forming a plated cap layer on said semiconductor substrate.

14. The semiconductor substrate processing apparatus according to claim 9, further comprising a bevel etching unit for etching and removing at least one of said plated metal film, a seed layer and a barrier layer formed at a peripheral edge portion of said semiconductor substrate.

15. The semiconductor substrate processing apparatus according to claim 9, further comprising at least one of a film thickness measuring instrument for measuring a thickness of a film formed on said semiconductor substrate and a detection sensor for detecting a surface state of a film formed on said semiconductor substrate.

16. The semiconductor substrate processing apparatus according to claim 9, wherein each of said units is interchangeable.

17. The semiconductor substrate processing apparatus according to claim 9, wherein in said plated metal film forming unit, plating treatment and cleaning treatment are performed in such a state that said semiconductor substrate is held by a substrate holding portion.

18. A semiconductor substrate processing apparatus, comprising:

a carry-in and carry-out section for carrying in and carrying out a semiconductor substrate having a surface on which a circuit is formed, in a dry state;

an annealing unit for annealing said semiconductor substrate;

a polishing unit for polishing at least part of said plated metal film on said semiconductor substrate;

a cleaning unit for cleaning said semiconductor substrate held by a revolution member supporting apparatus; and

a transfer mechanism for transferring said semiconductor substrate between said units;

wherein said revolution member supporting apparatus comprises:

a rotatable member which rotates about an axis of rotation; and

a plurality of holding members which are disposed along a circle having a center corresponding to said axis of rotation of said rotatable member, and which revolve around said axis of rotation when said rotatable member rotates;

wherein said holding members are allowed to swing about their own central axes.

19. The semiconductor substrate processing apparatus according to claim 18, further comprising a reinforcing seed layer forming unit for forming a reinforcing seed layer on said semiconductor substrate.

20. The semiconductor substrate processing apparatus

according to claim 18, further comprising a seed layer forming unit for forming a seed layer on said semiconductor substrate.

21. The semiconductor substrate processing apparatus according to claim 18, further comprising a barrier layer forming unit for forming a barrier layer on said semiconductor substrate.

22. The semiconductor substrate processing apparatus according to claim 18, further comprising a cap plating unit for forming a plated cap layer on said semiconductor substrate.

23. The semiconductor substrate processing apparatus according to claim 18, further comprising a bevel etching unit for etching and removing at least one of said plated metal film, a seed layer and a barrier layer formed at a peripheral edge portion of said semiconductor substrate.

24. The semiconductor substrate processing apparatus according to claim 18, further comprising at least one of a film thickness measuring instrument for measuring a thickness of a film formed on said semiconductor substrate and a detection sensor for detecting a surface state of a film formed on said semiconductor substrate.

25. The semiconductor substrate processing apparatus according to claim 18, wherein each of said units is interchangeable.

26. The semiconductor substrate processing apparatus according to claim 18, wherein in said plated metal film forming unit, plating treatment and cleaning treatment are performed in such a state that said semiconductor substrate is held by a substrate holding portion.

27. Rotatable holding members for holding a disc-shaped object, characterized in that said holding members are disposed along a circle having a center corresponding to an axis of rotation , and adapted to revolve around said axis of rotation and swing about their own central axes so that portions of the disc-shaped object which engages said holding members are shifted when holding members revolve.

28. A semiconductor substrate processing apparatus, comprising:

a carry-in and carry-out section for carrying in and carrying out a semiconductor substrate having a surface on which a circuit formed, in a dry state;

a plated metal film forming unit for forming a plated metal film on said semiconductor substrate which has been carried in;

an annealing unit for annealing said semiconductor substrate;

a bevel etching unit for etching and removing at least one of a plated metal film, a seed layer and a barrier layer formed at a peripheral edge portion of said semiconductor substrate held by a revolution member supporting apparatus; and

a transfer mechanism for transferring said semiconductor substrate between said units;

wherein said revolution member supporting apparatus comprises:

a rotatable member which rotates about an axis of rotation; and

a plurality of holding members which are disposed along a circle having a center corresponding to said axis of rotation of said rotatable member, and which revolve around said axis of rotation when said rotatable member rotates;

wherein said holding members are allowed to swing about their own central axes.

29. The semiconductor substrate processing apparatus according to claim 28, further comprising an aligner unit for aligning an orientation flat or a notch of the semiconductor substrate with a predetermined direction.

30. The semiconductor substrate processing apparatus according to claim 28, further comprising a chemical liquid supply system for supplying a plating liquid to said plated metal film forming unit.

31. The semiconductor substrate processing apparatus according to claim 28, further comprising a cleaning unit for cleaning said semiconductor substrate.

32. A semiconductor substrate processing apparatus, characterized in that an interior of facilities are divided into a loading and unloading area and a treatment unit area, a first robot is provided in said loading and unloading area for transferring a substrate between a loading and unloading section that accommodates a cassette and a temporary storage section disposed in said treatment unit area, and a second robot is provided in said treatment unit area for transferring the substrate between said temporary storage section and various treatment units disposed in said treatment unit area.

33. The semiconductor substrate processing apparatus according to claim 32, wherein said treatment units comprises a plating unit, a bevel etching unit and an annealing unit.

34. The semiconductor substrate processing apparatus according to claim 33, wherein said plating unit is disposed on one side of said second robot, and said bevel etching unit and said annealing unit are disposed on the opposite side of said second robot.

35. A revolution member supporting apparatus for holding a disc-shaped object, comprising:

a rotatable member which rotates about a given axis of rotation; and

a plurality of holding members which are disposed at equal intervals along a circle having a center corresponding to said axis

of rotation, and which engage the periphery of said object to hold said disc-shaped object such as a semiconductor wafer;

wherein each of said holding members has an arc-like surface portion for making a friction engagement with the periphery of said disc-shaped object, and is allowed to swing about a central axis of an arc of said arc-like surface.

36. The revolution member supporting apparatus according to claim 35, wherein said holding members are angularly adjustable about said central axis of said arc of said arc-like surface can be adjusted.

37. The revolution member supporting apparatus for holding a disc-shaped object according to claim 35, wherein each of said holding members has the center of gravity deviated from said central axis.

38. The revolution member supporting apparatus according to claim 35, wherein each of said holding members can move between an engaging/holding position where said holding member engages a peripheral portion of an object to be rotated, and a release position where said holding member is detached from said object to be rotated along a radial direction of said rotatable member.

39. The revolution member supporting apparatus according to claim 38, further comprising an elastic body that causes said holding member located in said engaging/holding position to engage

elastically with the peripheral portion of said object to be rotated.